UNITED STATES OF AMERICA
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268

Postal Rate and Fee Changes

Docket No. R97-1

PRESIDING OFFICER'S INFORMATION REQUEST NO. 7

(November 25, 1997)

The Postal Service is requested to provide the information described below to assist in developing a record for the consideration of its request for changes in rates and fees. In order to facilitate inclusion of the requested material in the evidentiary record, the Postal Service is to have a witness attest to the accuracy of the answers and be prepared to explain to the extent necessary the basis for the answers at our hearings. The answers are to be provided within 14 days.

1. In his oral testimony, in response to questions from the bench, witness Bradley stated that he would like to examine "each of the individual mail processing sites to see how volume and hours are related, once other factors are controlled for." Tr. 11/5582. Witness Bradley indicated that he had not done so. Tr. 11/5584.

a. For the cost pools listed in Table 7 of USPS-T-14, please provide the facility-level variabilities that would be obtained with the model given on page 36 of USPS-T-14. Specifically, estimate this model, including the serial correlation correction, for each facility separately, using only the time series data on that facility. This will yield a unique variability estimate for each facility from the time series variation of the dependent variables and regressors. Please report these results in a table containing the facility specific variability, its standard deviation, and the sample average over time of $\ln(TPH_{it})$ for that facility.

b. Please note the range of facility specific variabilities obtained in "a." for each cost pool and discuss whether it supports the assumption that a single cost pool variability can be validly estimated for the MODS facilities as a whole.

c. Please test the hypothesis that, for each cost pool, all of the facility-level variabilities obtained in "a." are equal versus the unrestricted alternative that the true facility-level variabilities "are statistically significantly different from one another." Tr. 11/5586 at lines 11-12.

d. Please discuss whether the results obtained from "c" support the assumption that a single cost pool variability can be validly estimated for the MODS facilities as a whole.

2. In response to POIR No. 4, question 3, pages 9 and 10, witness Bradley assumes that the fixed effects α_i variables in his mail processing models reflect non-volume factors. Witness Bradley also asserts that it is unimportant that α_i may be correlated with volume.

a. Please list the estimated fixed effects (α_i) implied by the fixed-effect models for the cost listed in Table 7 of USPS-T-14.

b. To help evaluate the assumption that the α_i variables reflect only non-volume effects, for the cost pools in "a.," please perform a linear regression of α_i on a constant term and the mean over time of $\ln(TPH_{it})$ for facility i.

c. If the coefficient of the mean over time of $\ln(TPH_{it})$ in the regression in "b" is positive please discuss why it is reasonable to assume that the α_i reflects only non-volume factors.

3. The form of the econometric model used to estimate the mail processing variabilities in USPS-T-14, page 36, equation (2) is not a full-form trans log equation in that products involving lagged variables are not included. Please discuss the reasons for not using the full-form of the model.

4. In USPS-T-14, at page 40, witness Bradley states "in previous work I found that non-volume variations in facility characteristics have an important impact on productivity." The referenced paper is Michael D. Bradley and Donald Baron, "Measuring Performance in A Multi-Product Firm: An Application to the U.S. Postal Service," published in Operations Research, Vol. 41, No. 3., May-June 1993. At page 452, the paper states

> This leads to the next step in our analysis: determining *why* some plants are more efficient than others. The answer to this question is also found through regression analysis; but now the regression is attempting to *explain* operating efficiency, not measure it. Operating efficiency is therefore regressed on all variables thought to influence it. **These variables might include factors like mail volumes processed** and delivered (to measure scale economies) . . . . [Bold supplied]

On page 454, the referenced paper describes Table 1 as a list of "the primary factors that determine operating efficiencies at individual MPCs [Mail Processing Centers], based on the MPCs' vector of factors." Table 1 lists "total piece handlings" among these factors. The paper estimates that for each ten percent increase in total piece handlings, operating efficiency increases by 2.51 percent.

a. Does this estimate of the effect of increases in total pieces handled on productivity, in part, "explain why operating efficiency varies across different locations and over time?" See page 453.

b. If the answer to "a." is yes, is this conclusion consistent with witness Bradley's assumption in USPS-T-14 that the facility-specific effects on costs (represented by the variable α_i) are only non-volume effects?

c. Please discuss why, or why not, each of the "primary factors that determine operating efficiency at MPCs" listed in Table 1 should, or should not be, included as explanatory variables in the models of mail processing labor variability proposed in USPS T-14.

d. The referenced paper observes, at page 454, that

> crude labor productivities, like total pieces per labor hour, may be misleading because they ignore important differences in the compositions of mail volumes (letters, flats, parcels) handled by different MPCs.

Please discuss why, or why not, facility differences in the composition of mail sorted should, or should not, be included as an explanatory variable in the models of mail processing labor variability proposed in USPS-T-14.

e. At page 452, the referenced paper lists "[d]etermine the marginal costs of the firm's outputs" as the first step in measuring performance by the operating efficiency approach. At page 453, it observes that sorting the mail is one of the two primary functions performed at an MPC for which marginal cost must be calculated.

(1) Was a marginal cost for sorting the mail estimated to support the conclusions in the referenced paper?

(2) If the answer to "(1)" above is yes, please provide that estimate.

f. At page 457, the referenced paper states that complete regression results are available from the authors upon request. Please provide them.

5. In USPS-T-14, at pages 80-84, witness Bradley performs an analysis to demonstrate the likely impact of measurement error in TPH on the estimated variabilities, using a first-difference estimator of equation (2) on page 36. He computes the first-difference estimator only. Differences in equation (2) estimated for longer lengths would also be useful in determining the likely impact of measurement error. For example, differencing equation (2) with its value lagged 13 accounting periods would help confirm the impact of measurement error and eliminate the accounting period dummy variables in the differenced model.

a. Please compute the ordinary least squares estimate of the 13^{th} difference version of equation (2), including all regressors that are not eliminated by the differencing process, for the cost pools listed in Table 7. As described on page 36, lines 10 through 12, please mean center the data before differencing.

b. Please compare the variability estimates obtained in "a." with those obtained from the first-difference and fixed-effect model estimates given in Table 7 of USPS-T-14.

c. Please comment on the degree to which the estimates from "a." confirm those reported in Table 7 and discuss the extent to which divergence between the two sets of estimates can be explained by the presence of measurement errors in TPH.

6. Please provide the formula used to calculate the following TYBR discounts:

Mail Category	Before-Rates Discount (cents)
Standard A Nonprofit	
Presort Nonletters	4.478295
Automation Basic Flats	2.107374
Automation 3/5-Digit Flats	6.919693

These discounts appear in USPS-T-7, "Direct Testimony of Thomas E. Thress," Table IV-1, page 221, and LR H-295, "Diskette Relating to Revisions of Dr. Tolley, USPS-T-6," Spreadsheets SF_R97.WK4 and SF_R97AR.WK4, page RAF Params, Sells AW30, AY30, and BB30.

7. Refer to LR H-172, "Derivation of After-Rates Fixed Weight Price Indices," Spreadsheet STASP96A.WK4, "Standard A Single Piece." Please confirm that the following changes should be made in FY 1996 Billing Determinants and fixed weight price indices (FWIs) for Standard A Single Piece mail:

a. Cells SGL_PC:C16 and UNIFIED:C8, figure 0.343 should be changed to 0.686.

b. Cells BULK:B17 and BULK:C17, figure 2.828 should be changed to 2.282.

c. Cells BULK:C29 and UNIFIED:C9, figure 145.667 should be changed to 145.121.

d. Cell UNIFIED:C11, figure 146.010 should be changed to 145.807.

e. Cell UNIFIED:E2, figure 1.022448 should be changed to 0.978045 (1/1.022448).

f. Cells UNIFIED:E172 through UNIFIED:E181, figure 0.976318 should be changed to 0.928992.

g. Cells UNIFIED:E183 through UNIFIED:E193, figure 1.024883 should be changed to 0.975477.

8. Refer to LR H-295, "Diskette Relating to Revisions of Dr. Tolley, USPS-T-6," Spreadsheet SF_R97AR.WK4. Please provide the source of the before-rates Standard A single piece FWI entry of "$0.974030" in cell FWIs:AC8.

USPS LR-H-106 (POIR Questions 9-17)

9. Please provide the detailed calculations and sources used to derive the figure shown at LR H-106, page VI-8, column 6, for the line entitled "1st Pr. -NCarr-Rt & Car. Rt. The amount shown is 1,999,683. Please also confirm that this is in thousands of dollars.

10. LR-H-106, page VI-2, column 1, spbs Oth, shows a figure of 20,237. This amount comes from LR H-77, page 194, column 4, line 17. According to the electronic spreadsheet version, the amount is calculated as follows: 20,237 = 192,529 times [(194.5/176) -1].

a. Please provide an explanation for what the numbers, 194.5 and 176, represent.

b. Please provide the source for these numbers.

c. Please discuss the rationale for the calculation. Interestingly, the 20,237 is the only number in column 4 of page 194 that is based on column 3. All the other cost reduction amounts and other program costs come from USPS-T-15, Appendix A, page 6 for FY 1997 and page 10 for FY 1998. Please be sure to include in your discussion of the rationale an explanation for the different treatment accorded spbs Oth.

11. The 192,529 referenced in question 10 is calculated as follows. First, calculate mail processing overhead factors for each mods group, each BMC group, and the nonmods offices. Second, for each mods, BMC, and nonmods group, multiply the FY 1996 volume variable mail processing cost for small parcel and bundle sorting (SPBS) by the overhead factors from the first step. The SPBS costs come from LR H-146, pages VII-17 to VI-19 for the column with the heading "17 SM PCL BNDL SRT." Third, sum the results from the second step yielding 176,195. Fourth, adjust the 176,195 to include the lump sum costs resulting in 176,645. Fifth, multiply the step four amount by the combined wage and volume growth factors for FY 1997 and FY 1998 producing 192,529.

According to LR H-77, page II-4, the lump sum adjustment above uses the volume variable lump sum costs from USPS-T-5, WP-B, W/S 3.1.1, page 4, column 8, line 50. In contrast, when making the same adjustment to the mail processing costs by shape earlier in LR H-106, page VI-1, line 3, which sources the same worksheet, the costs reflect the accrued level not the volume variable level. Both lump sum adjustment factors are used in LR H-106 to derive test year volume variable mail processing cost by shape. Please discuss the rationale for using different lump sum adjustment methods within this cost study.

12. The 20,237, referenced in question 10, is also used as a cost reduction amount in LR H-77 at page 194, column 4, line 24, i.e., 20,237 is used in the calculation to derive (56,634), the amount in column 4, line 24. Please provide a rationale for this calculation.

13. The amount in LR H-77 at page 194, column 4, line 24, (56,634), is subsequently used to derive the cost reduction amounts shown in LR H-106, page VI-2, column 1, 1OPbulk and 1OPpref. The (56,634) is multiplied by 0.5 yielding (28,317). This amount is used both for 1OPbulk and 1OPpref. Please provide the rationale for this calculation.

14. This question concerns the escalation factor used to update base year level cost to the test year level. In Docket No. MC95-1, LR MCR-10, the Postal Service updated unit costs by shape using the ratio of TYAR Direct Mail Processing unit cost (excluding mail processing overhead) to Base Year Mail Processing unit cost. The Test Year costs reflected the CRA level. The Base Year cost reflected LIOCATT level cost divided by volume, i.e., mail processing cost without Workpaper B adjustments, without overhead, and without premium pay. (See MC95-1, LR MCR-10, Table C, page 2, L.8; Table D, page 2; Table E, page 2, and Table F, page 2.)

In Docket No. R97-1, the Postal Service uses the same type of test year/ base year ratio, but the underlying numbers reflect a different level of cost than in Docket No. MC95-1. The Base Year unit costs reflect mail processing overhead, the Workpaper B adjustments, premium pay, the savings from cost reductions in FY 1997 and FY 1998, and the cost of other programs for FY 1997 and FY 1998. The Test Year unit cost reflects CRA level mail processing costs including overhead. (See LR H-106, pages II-4, III-4, IV-4, VI-2, and VI-8.)

Please discuss the rationale for including FY 1997/FY 1998 cost reductions and other program cost in the base year cost prior to the TYAR escalation factor.

15. Please provide the source (worksheet, column, line number) in LR H-106 for Exhibit 44A, Table 1, column 6, on pages 4, 5, 6, and 7, variable mail processing cost.

16. What is the purpose of the mail mix adjustment in LR H-106?

17. The mail mix costs in LR H-106 on pages VI-3 to VI-7 reference LR H-126. On page III-3 of LR H-126, the model unit cost for a nonprofit automation basic letter is 2.5175 cents per piece. The referenced source for this cost is LR H-126, Part VI, Section 6, page 1; but, the cost there is 0.3012 cents. Please provide the source for the 2.5175 cents. If the source does not show the derivation of this figure please provide it.

18. Exhibit 44A, shows the separation of mail processing cost for enhanced carrier route (ECR) and nonprofit enhanced carrier route (NPECR) between walk-sequence direct tally cost and nonwalk-sequence direct tally cost. Why didn't the Postal Service further separate the walk-sequence tally cost between high density and saturation which would have provided a basis for computing mail processing cost for each rate category in ECR and NPECR?

19. Have there been any changes in the number of post office box renewals since the implementation of MC96-3 fees? If so, please provide the data, disaggregated to the finest level possible.

20. Please refer to Exhibit USPS-33W (revised 10/06/97). The "net nontransportation cost" shown on line 8 is found by subtracting line 7 from the "total [adjusted] nontransportation costs" shown on line 3. The figure on line 7, however, appears to have the character of a revenue, since it is found by multiplying the number of postage pounds (line 6) by a marked-up cost element (line 5). Accordingly, please explain the meaning and the use of the "cost" figure on line 8.

Edward J. Gleiman
Presiding Officer